

# SEQUENCE LISTING

<110> CANFIELD, William

<120> METHOD OF PRODUCING GLYCOPROTEINS HAVING REDUCED COMPLEX CARBOHYDRATES IN MAMMALIAN CELLS

<130> 203510US77

<160> 21

<170> PatentIn version 3.1

<210> 1

<211> 3600

<212> DNA

<213> hybrid

<400> 1

```

atggagacag acacactcct gctatgggta ctgctgctct gggttccagg ttccactggg      60
gacgaagatc aggtagatcc gcggttaatc gacggtaagc ttagccgaga tcaataccat      120
gttttggttg attcctatag agacaatatt gctggaaagt cctttcagaa tcggctttgt      180
ctgcccattg cgattgacgt tgtttacacc tgggtgaatg gcacagatct tgaactactg      240
aaggaactac agcagggtcag agaacagatg gaggaggagc agaaagcaat gagagaaaac      300
cttgggaaaa acacaacgga acctactaag aagagtgaga agcagttaga gtgtttgcta      360
acacactgca ttaaggtgcc aatgcttgct ctggaccagc ccctgccagc caacatcacc      420
ctgaaggacc tgccatctct ttatccttct tttcattctg ccagtgcacat tttcaatggt      480
gcaaaaccaa aaaacccttc taccaatgtc tcagttgttg tttttgacag tactaaggat      540
gttgaagatg cccactctgg actgcttaaa ggaaatagca gacagacagt atggaggggg      600
tacttgacaa cagataaaga agtccctgga ttagtgctaa tgcaagattt ggctttcctg      660
agtggatttc caccaacatt caaggaaaca aatcaactaa aaacaaaatt gccagaaaat      720
ctttcctcta aagtcaaact gttgcagttg tattcagagg ccagtgtagc gcttctaaaa      780
ctgaataacc ccaaggattt tcaagaattg aataagcaaa ctaagaagaa catgaccatt      840
gatggaaaag aactgaccat aagtccctgca tatttattat gggatctgag cgccatcagc      900
cagtctaagc aggatgaaga catctctgcc agtcgttttg aagataacga agaactgagg      960
tactcattgc gatctatoga gaggcattgc ccatgggttc ggaatatttt cattgtcacc     1020
aacgggcaga ttccatcctg gctgaacctt gacaatcctc gagtgacaat agtaacacac     1080
caggatgttt ttcgaaattt gagccacttg cctaccttta gttcacctgc tattgaaagt     1140

```

cacgttcac	gcatcgaagg	gctgtcccag	aagtttattt	acctaaatga	tgatgtcatg	1200
tttgggaagg	atgtctggcc	agatgatttt	tacagtcact	ccaaaggcca	gaaggtttat	1260
ttgacatggc	ctgtgccaaa	ctgtgccgag	ggctgcccag	gttcctggat	taaggatggc	1320
tattgtgaca	aggcttgtaa	taattcagcc	tgcgattggg	atgggtgggga	ttgctctgga	1380
aacagtggag	ggagtcgcta	tattgcagga	ggtggaggta	ctgggagtat	tggagttgga	1440
cagccctggc	agtttggtgg	aggaataaac	agtgtctctt	actgtaatca	gggatgtgcg	1500
aattcctggc	tcgctgataa	gttctgtgac	caagcatgca	atgtcttgtc	ctgtgggttt	1560
gatgctggcg	actgtgggca	agatcatttt	catgaattgt	ataaagtgat	ccttctccca	1620
aaccagactc	actatattat	tccaaaaggt	gaatgcctgc	cttatttcag	ctttgcagaa	1680
gtagccaaaa	gaggagtga	aggtgcctat	agtgacaatc	caataattcg	acatgcttct	1740
attgccaaca	agtggaaaac	catccacctc	ataatgcaca	gtggaatgaa	tgccaccaca	1800
atacatttta	atctcacgtt	tcaaaaataca	aacgatgaag	agttcaaaat	gcagataaca	1860
gtggagggtg	acacaaggga	gggacccaaa	ctgaattcta	cggcccagaa	gggttacgaa	1920
aatttagtta	gtcccataac	acttcttcca	gaggcgga	tcctttttga	ggatattccc	1980
aaagaaaaac	gcttcccga	gtttaagaga	catgatgtta	actcaacaag	gagagcccag	2040
gaagagggtg	aaattcccct	ggtaaataat	tactccttc	caaaagacgc	ccagttgagt	2100
ctcaatacct	tggatttgca	actggaacat	ggagacatca	ctttgaaagg	atacaatttg	2160
tccaagtcag	ccttgctgag	atcatttctg	atgaactcac	agcatgctaa	aataaaaaat	2220
caagctataa	taacagatga	aacaaatgac	agtttggtgg	ctccacagga	aaaacagggt	2280
cataaaagca	tcttgccaaa	cagcttagga	gtgtctgaaa	gattgcagag	gttgactttt	2340
cctgcagtga	gtgtaaaagt	gaatgggtcat	gaccagggtc	agaatccacc	cctggacttg	2400
gagaccacag	caagatttag	agtggaaact	cacacccaaa	aaaccatagg	cggaaaatgtg	2460
acaaaagaaa	agcccccatc	tctgattggt	ccactggaaa	gccagatgac	aaaagaaaag	2520
aaaatcacag	ggaaagaaaa	agagaacagt	agaatggagg	aaaatgctga	aatcacata	2580
ggcgttactg	aagtgttact	tggaaagaa	ctgcagcatt	acacagatag	ttacttgggc	2640
tttttgccat	gggagaaaaa	aaagtatttc	ctagatcttc	tcgacgaaga	agagtcattg	2700
aagacacaat	tggcctactt	cactgatagc	aagaatagag	ccagatacaa	gagagataca	2760
tttgcagatt	ccctcagata	tgtaaataaa	attctaaata	gcaagtttgg	attcacatcg	2820
cggaaagtcc	ctgctcacat	gcctcacatg	attgaccgga	ttgttatgca	agaactgcaa	2880

gatatgttcc ctgaagaatt tgacaagacg tcatttcaca aagtgcgcca ttctgaggat 2940  
 atgcagtttg ccttctctta tttttattat ctcatgagtg cagtgcagcc actgaatata 3000  
 tctcaagtct ttgatgaagt tgatacagat caatctggtg tcttgtctga cagagaaatc 3060  
 cgaacactgg ctaccagaat tcacgaactg ccgttaagtt tgcaggattt gacaggctctg 3120  
 gaacacatgc taataaattg ctcaaaaatg cttcctgctg atatcacgca gctaaataat 3180  
 attccaccaa cttaggaatc ctactatgat cccaacctgc caccggtcac taaaagtcta 3240  
 gtaacaaaact gtaaaccagt aactgacaaa atccacaaag catataagga caaaaacaaa 3300  
 tataggtttg aaatcatggg agaagaagaa atcgctttta aaatgattcg taccaacggt 3360  
 tctcatgtgg ttggccagtt ggatgacata agaaaaaacc ctaggaagtt tgtttgcttg 3420  
 aatgacaaca ttgaccacaa tcataaagat gctcagacag tgaaggctgt tctcagggtac 3480  
 ttctatgaat ccatgttccc cataccttcc caatttgaac tgccaagaga gtatcgaaac 3540  
 cgtttccttc atatgcatga gctgcaggaa tggagggtct atcgagacaa attgaagtag 3600

<210> 2  
 <211> 1199  
 <212> PRT  
 <213> hybrid

<400> 2

Met Glu Thr Asp Thr Leu Leu Leu Trp Val Leu Leu Leu Trp Val Pro  
 1 5 10 15

Gly Ser Thr Gly Asp Glu Asp Gln Val Asp Pro Arg Leu Ile Asp Gly  
 20 25 30

Lys Leu Ser Arg Asp Gln Tyr His Val Leu Phe Asp Ser Tyr Arg Asp  
 35 40 45

Asn Ile Ala Gly Lys Ser Phe Gln Asn Arg Leu Cys Leu Pro Met Pro  
 50 55 60

Ile Asp Val Val Tyr Thr Trp Val Asn Gly Thr Asp Leu Glu Leu Leu  
 65 70 75 80

Lys Glu Leu Gln Gln Val Arg Glu Gln Met Glu Glu Glu Gln Lys Ala  
 85 90 95

102390-2241

Met Arg Glu Ile Leu Gly Lys Asn Thr Thr Glu Pro Thr Lys Lys Ser  
100 105 110

Glu Lys Gln Leu Glu Cys Leu Leu Thr His Cys Ile Lys Val Pro Met  
115 120 125

Leu Val Leu Asp Pro Ala Leu Pro Ala Asn Ile Thr Leu Lys Asp Leu  
130 135 140

Pro Ser Leu Tyr Pro Ser Phe His Ser Ala Ser Asp Ile Phe Asn Val  
145 150 155 160

Ala Lys Pro Lys Asn Pro Ser Thr Asn Val Ser Val Val Val Phe Asp  
165 170 175

Ser Thr Lys Asp Val Glu Asp Ala His Ser Gly Leu Leu Lys Gly Asn  
180 185 190

Ser Arg Gln Thr Val Trp Arg Gly Tyr Leu Thr Thr Asp Lys Glu Val  
195 200 205

Pro Gly Leu Val Leu Met Gln Asp Leu Ala Phe Leu Ser Gly Phe Pro  
210 215 220

Pro Thr Phe Lys Glu Thr Asn Gln Leu Lys Thr Lys Leu Pro Glu Asn  
225 230 235 240

Leu Ser Ser Lys Val Lys Leu Leu Gln Leu Tyr Ser Glu Ala Ser Val  
245 250 255

Ala Leu Leu Lys Leu Asn Asn Pro Lys Asp Phe Gln Glu Leu Asn Lys  
260 265 270

Gln Thr Lys Lys Asn Met Thr Ile Asp Gly Lys Glu Leu Thr Ile Ser  
275 280 285

Pro Ala Tyr Leu Leu Trp Asp Leu Ser Ala Ile Ser Gln Ser Lys Gln  
290 295 300

Asp Glu Asp Ile Ser Ala Ser Arg Phe Glu Asp Asn Glu Glu Leu Arg  
305 310 315 320

Tyr Ser Leu Arg Ser Ile Glu Arg His Ala Pro Trp Val Arg Asn Ile

325	330	335
Phe Ile Val Thr Asn Gly Gln Ile Pro Ser Trp Leu Asn Leu Asp Asn		
340	345	350
Pro Arg Val Thr Ile Val Thr His Gln Asp Val Phe Arg Asn Leu Ser		
355	360	365
His Leu Pro Thr Phe Ser Ser Pro Ala Ile Glu Ser His Val His Arg		
370	375	380
Ile Glu Gly Leu Ser Gln Lys Phe Ile Tyr Leu Asn Asp Asp Val Met		
385	390	395
Phe Gly Lys Asp Val Trp Pro Asp Asp Phe Tyr Ser His Ser Lys Gly		
405	410	415
Gln Lys Val Tyr Leu Thr Trp Pro Val Pro Asn Cys Ala Glu Gly Cys		
420	425	430
Pro Gly Ser Trp Ile Lys Asp Gly Tyr Cys Asp Lys Ala Cys Asn Asn		
435	440	445
Ser Ala Cys Asp Trp Asp Gly Gly Asp Cys Ser Gly Asn Ser Gly Gly		
450	455	460
Ser Arg Tyr Ile Ala Gly Gly Gly Gly Thr Gly Ser Ile Gly Val Gly		
465	470	475
Gln Pro Trp Gln Phe Gly Gly Gly Ile Asn Ser Val Ser Tyr Cys Asn		
485	490	495
Gln Gly Cys Ala Asn Ser Trp Leu Ala Asp Lys Phe Cys Asp Gln Ala		
500	505	510
Cys Asn Val Leu Ser Cys Gly Phe Asp Ala Gly Asp Cys Gly Gln Asp		
515	520	525
His Phe His Glu Leu Tyr Lys Val Ile Leu Leu Pro Asn Gln Thr His		
530	535	540
Tyr Ile Ile Pro Lys Gly Glu Cys Leu Pro Tyr Phe Ser Phe Ala Glu		
545	550	555
		560

Val Ala Lys Arg Gly Val Glu Gly Ala Tyr Ser Asp Asn Pro Ile Ile  
565 570 575

Arg His Ala Ser Ile Ala Asn Lys Trp Lys Thr Ile His Leu Ile Met  
580 585 590

His Ser Gly Met Asn Ala Thr Thr Ile His Phe Asn Leu Thr Phe Gln  
595 600 605

Asn Thr Asn Asp Glu Glu Phe Lys Met Gln Ile Thr Val Glu Val Asp  
610 615 620

Thr Arg Glu Gly Pro Lys Leu Asn Ser Thr Ala Gln Lys Gly Tyr Glu  
625 630 635 640

Asn Leu Val Ser Pro Ile Thr Leu Leu Pro Glu Ala Glu Ile Leu Phe  
645 650 655

Glu Asp Ile Pro Lys Glu Lys Arg Phe Pro Lys Phe Lys Arg His Asp  
660 665 670

Val Asn Ser Thr Arg Arg Ala Gln Glu Glu Val Lys Ile Pro Leu Val  
675 680 685

Asn Ile Ser Leu Leu Pro Lys Asp Ala Gln Leu Ser Leu Asn Thr Leu  
690 695 700

Asp Leu Gln Leu Glu His Gly Asp Ile Thr Leu Lys Gly Tyr Asn Leu  
705 710 715 720

Ser Lys Ser Ala Leu Leu Arg Ser Phe Leu Met Asn Ser Gln His Ala  
725 730 735

Lys Ile Lys Asn Gln Ala Ile Ile Thr Asp Glu Thr Asn Asp Ser Leu  
740 745 750

Val Ala Pro Gln Glu Lys Gln Val His Lys Ser Ile Leu Pro Asn Ser  
755 760 765

Leu Gly Val Ser Glu Arg Leu Gln Arg Leu Thr Phe Pro Ala Val Ser  
770 775 780







<400> 3  
cggagccgag cgggcggtccg tcgcccggagc tgcaatgagc ggcgcccgga ggctgtgacc 60  
tgcgcgcggc ggcccgaccg gggcccctga atggcggtc gctgaggcgg cggcggcggc 120  
ggcggtcag gctcctcggg gcgtggcggtg gcggtgaagg ggtgatgctg ttcaagctcc 180  
tgcaagagaca aacctatacc tgcctgtccc acaggatgg gctctacgtg tgcttcttgg 240  
gcgtcggtgt caccatcgtc tccgccttcc agttcggaga ggtgggttctg gaatggagcc 300  
gagatcaata ccatgttttg tttgattcct atagagacaa tattgctgga aagtcctttc 360  
agaatcggct ttgtctgccc atgccgattg acgttggtta cacctgggtg aatggcacag 420  
atcttgaact actgaaggaa ctacagcagg tcagagaaca gatggaggag gagcagaaaag 480  
caatgagaga aatccttggg aaaaaacacaa cggaacctac taagaagagt gagaagcagt 540  
tagagtgttt gctaacacac tgcattaagg tgccaatgct tgtactggac ccagccctgc 600  
cagccaacat caccctgaag gacgtgccat ctctttatcc ttcttttcat tctgccagtg 660  
acattttcaa tgttgcaaaa caaaaaacc cttctaccaa tgtctcagtt gttgtttttg 720  
acagtactaa ggatgttgaa gatgccact ctggactgct taaaggaaat agcagacaga 780  
cagtatggag ggggtacttg acaacagata aagaagtcct tggattagt ctaatgcaag 840  
atgttgcttt cctgagtgga tttccaccaa cattcaagga aacaaatcaa ctaaaaacaa 900  
aattgccaga aaatctttcc tctaaagtca aactgttgca gttgtattca gaggccagtg 960  
tagcgcttct aaaactgaat aaccccaagg attttcaaga attgaataag caaactaaga 1020  
agaacatgac cattgatgga aaagaactga ccataagtcc tgcataattta ttatgggatc 1080  
tgagcgccat cagccagtct aagcaggatg aagacatctc tgccagtcgt tttgaagata 1140  
acgaagaact gaggtactca ttgcgatcta tcgagaggca tgcacatgg gttcgggaata 1200  
ttttcattgt caccaacggg cagattccat cctggctgaa ccttgacaat cctcgagtga 1260  
caatagtaac acaccaggat gtttttcgaa atttgagcca cttgcctacc tttagtccac 1320  
ctgctattga aagtcacatt catcgcatcg aagggtgtc ccagaagttt atttacctaa 1380  
atgatgatgt catgtttggg aaggatgtct ggccagatga tttttacagt cactccaaag 1440  
gccagaaggt ttatttgaca tggcctgtgc caaactgtgc cgagggtgtc ccaggttcct 1500  
ggattaagga tggctattgt gacaaggctt gtaataattc agcctgcatg tgggatgggtg 1560  
gggattgctc tggaaacagt ggaggagtc gctatattgc aggaggtgga ggtactggga 1620  
gtattggagt tggacacccc tggcagtttg, gtggaggaat aaacagtgtc tcttactgta 1680

atcaggggatg	tgcaaatcc	tggtctgctg	ataagttctg	tgaccaagca	tgcaatgtct	1740
tgctctgtgg	gtttgatgct	ggcgactgtg	ggcaagatca	ttttcatgaa	ttgtataaag	1800
tgatccttct	cccaaaccag	actcactata	ttattccaaa	aggtgaatgc	ctgccttatt	1860
tcagctttgc	agaagtagcc	aaaagaggag	ttgaagggtgc	ctatagtgac	aatccaataa	1920
ttcgacatgc	ttctattgcc	aacaagtgga	aaaccatcca	cctcataatg	cacagtggaa	1980
tgaatgccac	cacaatacat	tttaatctca	cgtttcaaaa	tacaaacgat	gaagagttca	2040
aaatgcagat	aacagtggag	gtggacacaa	gggagggacc	aaaactgaat	tctacggccc	2100
agaaggggta	cgaaaattta	gttagtccca	taacacttct	tccagaggcg	gaaatccttt	2160
ttgaggatat	tcccaaagaa	aaacgcttcc	cgaagttaa	gagacatgat	gttaactcaa	2220
caaggagagc	ccaggaagag	gtgaaaattc	ccctggtaaa	tatttcactc	cttccaaaag	2280
acgcccagtt	gagtctcaat	accttggatt	tgcaactgga	acatggagac	atcactttga	2340
aaggatacaa	tttgtccaag	tcagccttgc	tgagatcatt	tctgatgaac	tcacagcatg	2400
ctaaaataaa	aatcaagct	ataataacag	atgaaacaaa	tgacagtttg	gtggctccac	2460
aggaaaaaca	ggttcataaa	agcatcttgc	caaacagctt	aggagtgtct	gaaagattgc	2520
agagggttgac	ttttcctgca	gtgagtgtaa	aagtgaatgg	tcatgaccag	ggtcagaatc	2580
caccctgga	cttgagagacc	acagcaagat	ttagagtgga	aactcacacc	caaaaaacca	2640
taggcggaaa	tgtgacaaaa	gaaaagcccc	catctctgat	tgttccactg	gaaagccaga	2700
tgacaaaaga	aaagaaaatc	acagggaaaag	aaaaagagaa	cagtagaatg	gaggaaaatg	2760
ctgaaaatca	cataggcggt	actgaagtgt	tacttggaaag	aaagctgcag	cattacacag	2820
atagttactt	gggctttttg	ccatgggaga	aaaaaaagta	tttccaagat	cttctcgacg	2880
aagaagagtc	attgaagaca	caattggcat	acttcactga	tagcaaaaat	actgggaggc	2940
aactaaaaga	tacatttgca	gattccctca	gatatgtaaa	taaaattcta	aatagcaagt	3000
ttggattcac	atcgcgaaa	gtccctgctc	acatgcctca	catgattgac	cggattgtta	3060
tgcaagaact	gcaagatatg	ttccctgaag	aatttgacaa	gacgtcattt	cacaaagtgc	3120
gccattctga	ggatatgcag	tttgccttct	cttattttta	ttatctcatg	agtgcagtgc	3180
agccactgaa	tatatctcaa	gtctttgatg	aagttgatac	agatcaatct	gggtgtctgt	3240
ctgacagaga	aatccgaaca	ctggctacca	gaattcacga	actgccgtta	agtttgacag	3300
atttgacagg	tctggaacac	atgctaataa	attgctcaaa	aatgcttcct	gctgatatca	3360
cgcagctaaa	taatattcca	ccaactcagg	aatcctacta	tgatcccaac	ctgccaccgg	3420

tcactaaaag	tctagtaaca	aactgtaaac	cagtaactga	caaaatccac	aaagcatata	3480
aggacaaaaa	caaatatagg	tttgaaatca	tgggagaaga	agaaatcgct	tttaaaatga	3540
ttcgtaccaa	cgtttctcat	gtgggtggcc	agttggatga	cataagaaaa	aaccctagga	3600
agtttgtttg	cctgaatgac	aacattgacc	acaatcataa	agatgctcag	acagtgaagg	3660
ctgttctcag	ggacttctat	gaatccatgt	tccccatacc	ttccaatttt	gaactgcaa	3720
gagagtatcg	aaaccgtttc	cttcatatgc	atgagctgca	ggaatggagg	gcttatcgag	3780
acaaattgaa	gttttgacc	cattgtgtac	tagcaacatt	gattatgttt	actatattct	3840
cattttttgc	tgagcagtta	attgcactta	agcggaagat	atttcccaga	aggaggatac	3900
acaaagaagc	tagtccaat	cgaatcagag	tatagaagat	cttcatttga	aaaccatcta	3960
cctcagcatt	tactgagcat	tttaaaactc	agcttcacag	agatgtcttt	gtgatgtgat	4020
gcttagcagt	ttggcccgaa	gaaggaaaat	atccagtacc	atgctgtttt	gtggcatgaa	4080
tatagccac	tgactaggaa	ttatttaacc	aaccactga	aaacttgtgt	gtcgagcagc	4140
tctgaactga	ttttactttt	aaagaatttg	ctcatggacc	tgatcatcctt	tttataaaaa	4200
ggctcactga	caagagacag	ctgttaattt	cccacagcaa	tcattgcaga	ctaactttat	4260
taggagaagc	ctatgccagc	tgggagtgat	tgctaagagg	ctccagtctt	tgcattccaa	4320
agccttttgc	taaagttttg	cacttttttt	ttttcatttc	ccatttttaa	gtagttacta	4380
agttaactag	ttattcttgc	ttctgagtat	aacgaattgg	gatgtctaaa	cctattttta	4440
tagatgttat	ttaaataatg	cagcaatatc	acctcttatt	gacaatacct	aaattatgag	4500
ttttattaat	atttaagact	gtaaatggtc	ttaaaccact	aactactgaa	gagctcaatg	4560
attgacatct	gaaatgcttt	gtaattattg	acttcagccc	ctaagaatgc	tatgatttca	4620
cgtgcaggtc	taatttcaac	aggctagagt	tagtactact	taccagatgt	aattatgttt	4680
tggaaatgta	catattcaaa	cagaagtgcc	tcattttaga	aatgagtagt	gctgatggca	4740
ctggcacatt	acagtgggtg	cttgtttaat	actcattggg	atattccagt	agctatctct	4800
ctcagttggg	ttttgataga	acagaggcca	gcaaactttc	tttgtaaaag	gctgggttagt	4860
aaattattgc	aggccacctg	tgtctttgtc	atacattctt	cttgctgttg	tttagtttgt	4920
tttttttcaa	acaaccctct	aaaaatgtaa	aaaccatggt	tagcttgtag	ctgtacaaaa	4980
actgcccacc	agccagatgt	gaccctcagg	ccatcatttg	ccaatcactg	agaattattt	5040
ttgttggtgt	tggttggtgt	gtttttgaga	cagagtctct	ctctgttgcc	caggctggag	5100

tgcagtggcg caatctcagc tcaactgcaac ctccgcctcc cgggttcaag cagttctgtc 5160  
 tcagccttct gagtagctgg gactacaggt gcatgccacc acaccctgct aatttttgta 5220  
 ttttttagtag agacgggggt tccaccatat tggtcaggct tatcttgaac tcctgacctc 5280  
 aggtgatcca cctgcctctg cctcccaaag tgctgagatt acaggcataa gccagtgcac 5340  
 ccagccgaga attagtattt ttatgtatgg ttaaaccctg gcgtctagcc atattttatg 5400  
 tcataatata atggatttgt gaagagcaga ttccatgagt aactctgaca ggtatttttag 5460  
 atcatgatct caacaatatt cctcccāaaat ggcatacatc ttttgtacaa agaacttgaa 5520  
 atgtaaatac tgtgtttgtg ctgtaagagt tgtgtatttc aaaaactgaa atctcataaa 5580  
 aagttaaatt ttgaaaa 5597

<210> 4  
 <211> 928  
 <212> PRT  
 <213> Homo sapiens  
 <400> 4

Met Leu Phe Lys Leu Leu Gln Arg Gln Thr Tyr Thr Cys Leu Ser His  
 1 5 10 15  
 Arg Tyr Gly Leu Tyr Val Cys Phe Leu Gly Val Val Val Thr Ile Val  
 20 25 30  
 Ser Ala Phe Gln Phe Gly Glu Val Val Leu Glu Trp Ser Arg Asp Gln  
 35 40 45  
 Tyr His Val Leu Phe Asp Ser Tyr Arg Asp Asn Ile Ala Gly Lys Ser  
 50 55 60  
 Phe Gln Asn Arg Leu Cys Leu Pro Met Pro Ile Asp Val Val Tyr Thr  
 65 70 75 80  
 Trp Val Asn Gly Thr Asp Leu Glu Leu Leu Lys Glu Leu Gln Gln Val  
 85 90 95  
 Arg Glu Gln Met Glu Glu Glu Gln Lys Ala Met Arg Glu Ile Leu Gly  
 100 105 110  
 Lys Asn Thr Thr Glu Pro Thr Lys Lys Ser Glu Lys Gln Leu Glu Cys  
 115 120 125



1003390-1240  
T0227-068200T

Gln Ile Pro Ser Trp Leu Asn Leu Asp Asn Pro Arg Val Thr Ile Val  
355 360 365

Thr His Gln Asp Val Phe Arg Asn Leu Ser His Leu Pro Thr Phe Ser  
370 375 380

Ser Pro Ala Ile Glu Ser His Ile His Arg Ile Glu Gly Leu Ser Gln  
385 390 395 400

Lys Phe Ile Tyr Leu Asn Asp Asp Val Met Phe Gly Lys Asp Val Trp  
405 410 415

Pro Asp Asp Phe Tyr Ser His Ser Lys Gly Gln Lys Val Tyr Leu Thr  
420 425 430

Trp Pro Val Pro Asn Cys Ala Glu Gly Cys Pro Gly Ser Trp Ile Lys  
435 440 445

Asp Gly Tyr Cys Asp Lys Ala Cys Asn Asn Ser Ala Cys Asp Trp Asp  
450 455 460

Gly Gly Asp Cys Ser Gly Asn Ser Gly Gly Ser Arg Tyr Ile Ala Gly  
465 470 475 480

Gly Gly Gly Thr Gly Ser Ile Gly Val Gly His Pro Trp Gln Phe Gly  
485 490 495

Gly Gly Ile Asn Ser Val Ser Tyr Cys Asn Gln Gly Cys Ala Asn Ser  
500 505 510

Trp Leu Ala Asp Lys Phe Cys Asp Gln Ala Cys Asn Val Leu Ser Cys  
515 520 525

Gly Phe Asp Ala Gly Asp Cys Gly Gln Asp His Phe His Glu Leu Tyr  
530 535 540

Lys Val Ile Leu Leu Pro Asn Gln Thr His Tyr Ile Ile Pro Lys Gly  
545 550 555 560

Glu Cys Leu Pro Tyr Phe Ser Phe Ala Glu Val Ala Lys Arg Gly Val  
565 570 575

Glu Gly Ala Tyr Ser Asp Asn Pro Ile Ile Arg His Ala Ser Ile Ala

10023350-12210

580					585					590					
Asn	Lys	Trp	Lys	Thr	Ile	His	Leu	Ile	Met	His	Ser	Gly	Met	Asn	Ala
	595						600					605			
Thr	Thr	Ile	His	Phe	Asn	Leu	Thr	Phe	Gln	Asn	Thr	Asn	Asp	Glu	Glu
	610					615					620				
Phe	Lys	Met	Gln	Ile	Thr	Val	Glu	Val	Asp	Thr	Arg	Glu	Gly	Pro	Lys
625						630					635				640
Leu	Asn	Ser	Thr	Ala	Gln	Lys	Gly	Tyr	Glu	Asn	Leu	Val	Ser	Pro	Ile
				645					650					655	
Thr	Leu	Leu	Pro	Glu	Ala	Glu	Ile	Leu	Phe	Glu	Asp	Ile	Pro	Lys	Glu
			660					665					670		
Lys	Arg	Phe	Pro	Lys	Phe	Lys	Arg	His	Asp	Val	Asn	Ser	Thr	Arg	Arg
	675						680					685			
Ala	Gln	Glu	Glu	Val	Lys	Ile	Pro	Leu	Val	Asn	Ile	Ser	Leu	Leu	Pro
	690					695					700				
Lys	Asp	Ala	Gln	Leu	Ser	Leu	Asn	Thr	Leu	Asp	Leu	Gln	Leu	Glu	His
705						710					715				720
Gly	Asp	Ile	Thr	Leu	Lys	Gly	Tyr	Asn	Leu	Ser	Lys	Ser	Ala	Leu	Leu
				725					730					735	
Arg	Ser	Phe	Leu	Met	Asn	Ser	Gln	His	Ala	Lys	Ile	Lys	Asn	Gln	Ala
			740					745					750		
Ile	Ile	Thr	Asp	Glu	Thr	Asn	Asp	Ser	Leu	Val	Ala	Pro	Gln	Glu	Lys
		755					760					765			
Gln	Val	His	Lys	Ser	Ile	Leu	Pro	Asn	Ser	Leu	Gly	Val	Ser	Glu	Arg
	770					775					780				
Leu	Gln	Arg	Leu	Thr	Phe	Pro	Ala	Val	Ser	Val	Lys	Val	Asn	Gly	His
785						790					795				800
Asp	Gln	Gly	Gln	Asn	Pro	Pro	Leu	Asp	Leu	Glu	Thr	Thr	Ala	Arg	Phe
				805					810					815	

1002390-122101

Arg Val Glu Thr His Thr Gln Lys Thr Ile Gly Gly Asn Val Thr Lys  
820 825 830

Glu Lys Pro Pro Ser Leu Ile Val Pro Leu Glu Ser Gln Met Thr Lys  
835 840 845

Glu Lys Lys Ile Thr Gly Lys Glu Lys Glu Asn Ser Arg Met Glu Glu  
850 855 860

Asn Ala Glu Asn His Ile Gly Val Thr Glu Val Leu Leu Gly Arg Lys  
865 870 875 880

Leu Gln His Tyr Thr Asp Ser Tyr Leu Gly Phe Leu Pro Trp Glu Lys  
885 890 895

Lys Lys Tyr Phe Gln Asp Leu Leu Asp Glu Glu Glu Ser Leu Lys Thr  
900 905 910

Gln Leu Ala Tyr Phe Thr Asp Ser Lys Asn Thr Gly Arg Gln Leu Lys  
915 920 925

<210> 5  
<211> 328  
<212> PRT  
<213> Homo sapiens

<400> 5

Asp Thr Phe Ala Asp Ser Leu Arg Tyr Val Asn Lys Ile Leu Asn Ser  
1 5 10 15

Lys Phe Gly Phe Thr Ser Arg Lys Val Pro Ala His Met Pro His Met  
20 25 30

Ile Asp Arg Ile Val Met Gln Glu Leu Gln Asp Met Phe Pro Glu Glu  
35 40 45

Phe Asp Lys Thr Ser Phe His Lys Val Arg His Ser Glu Asp Met Gln  
50 55 60

Phe Ala Phe Ser Tyr Phe Tyr Tyr Leu Met Ser Ala Val Gln Pro Leu  
65 70 75 80





305

310

315

320

Ala Ser Pro Asn Arg Ile Arg Val  
325

&lt;210&gt; 6

&lt;211&gt; 1219

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 6

gtagagcgca ggtgcgcggc tcgatggcgg cggggctggc gcggctcctg ttgctcctcg 60  
ggctctcggc cggcggggccc gcgccggcag gtgcagcgaa gatgaaggtg gtggaggagc 120  
ccaacgcggtt tgggggtgaac aacccgttct tgcctcaggc cagtcgcctc caggccaaga 180  
gggatccttc acccgtgtct ggaccctgac atctcttccg actctcgggc aagtgttcca 240  
gcctgggtgga gtccacgtac aagtatgagt tctgcccgtt ccacaacgtg acccagcacg 300  
agcagacctt ccgctggaac gcctacagtg ggatcctcgg catctggcac gagtgggaga 360  
tcgccaaaca caccttcacg ggcatgtgga tgagggacgg tgacgcctgc cgttcccggg 420  
gccggcagag caaggtggag ctggcgtgtg gaaaaagcaa ccggctggcc catgtgtccg 480  
agccgagcac ctgcgtctat gcgctgacgt tcgagacccc cctcgtctgc cacccccacg 540  
ccttgctagt gtacccaacc ctgccagagg ccctgcagcg gcagtgggac caggtagagc 600  
aggacctggc cgatgagctg atcacccccc agggccatga gaagttgctg aggacacttt 660  
ttgaggatgc tggctactta aagaccccag aagaaaatga acccaccag ctggagggag 720  
gtcctgacag cttgggggtt gagaccctgg aaaactgcag gaaggctcat aaagaactct 780  
caaaggagat caaaaggctg aaaggtttgc tcaccagca cggcatcccc tacacgaggc 840  
ccacagaaac ttccaacttg gagcacttgg gccacgagac gccacagacc aagtctccag 900  
agcagctgcg gggtgaccca ggactgcgtg ggagtttgtg accttggtgt gggagagcag 960  
aggtggacgc ggccgagagc cctacagaga agctggctgg taggacccgc aggaccagct 1020  
gaccaggctt gtgctcagag aagcagacaa aacaaagatt caaggtttta attaattccc 1080  
atactgataa aaataactcc atgaattctg taaaccattg cataaatgct atagtgtaaa 1140  
aaaattttaa caagtgttaa ctttaaacag ttcgctacaa gtaaagtatt ataaatacta 1200  
aaaaaaaaa aaaaaaaaaa 1219

&lt;210&gt; 7

<211> 305  
 <212> PRT  
 <213> Homo sapiens

<400> 7

Met Ala Ala Gly Leu Ala Arg Leu Leu Leu Leu Gly Leu Ser Ala  
 1 5 10 15

Gly Gly Pro Ala Pro Ala Gly Ala Ala Lys Met Lys Val Val Glu Glu  
 20 25 30

Pro Asn Ala Phe Gly Val Asn Asn Pro Phe Leu Pro Gln Ala Ser Arg  
 35 40 45

Leu Gln Ala Lys Arg Asp Pro Ser Pro Val Ser Gly Pro Val His Leu  
 50 55 60

Phe Arg Leu Ser Gly Lys Cys Phe Ser Leu Val Glu Ser Thr Tyr Lys  
 65 70 75 80

Tyr Glu Phe Cys Pro Phe His Asn Val Thr Gln His Glu Gln Thr Phe  
 85 90 95

Arg Trp Asn Ala Tyr Ser Gly Ile Leu Gly Ile Trp His Glu Trp Glu  
 100 105 110

Ile Ala Asn Asn Thr Phe Thr Gly Met Trp Met Arg Asp Gly Asp Ala  
 115 120 125

Cys Arg Ser Arg Ser Arg Gln Ser Lys Val Glu Leu Ala Cys Gly Lys  
 130 135 140

Ser Asn Arg Leu Ala His Val Ser Glu Pro Ser Thr Cys Val Tyr Ala  
 145 150 155 160

Leu Thr Phe Glu Thr Pro Leu Val Cys His Pro His Ala Leu Leu Val  
 165 170 175

Tyr Pro Thr Leu Pro Glu Ala Leu Gln Arg Gln Trp Asp Gln Val Glu  
 180 185 190

Gln Asp Leu Ala Asp Glu Leu Ile Thr Pro Gln Gly His Glu Lys Leu  
 195 200 205

10033690-122104

Leu Arg Thr Leu Phe Glu Asp Ala Gly Tyr Leu Lys Thr Pro Glu Glu  
210 215 220

Asn Glu Pro Thr Gln Leu Glu Gly Gly Pro Asp Ser Leu Gly Phe Glu  
225 230 235 240

Thr Leu Glu Asn Cys Arg Lys Ala His Lys Glu Leu Ser Lys Glu Ile  
245 250 255

Lys Arg Leu Lys Gly Leu Leu Thr Gln His Gly Ile Pro Tyr Thr Arg  
260 265 270

Pro Thr Glu Thr Ser Asn Leu Glu His Leu Gly His Glu Thr Pro Arg  
275 280 285

Ala Lys Ser Pro Glu Gln Leu Arg Gly Asp Pro Gly Leu Arg Gly Ser  
290 295 300

Leu  
305

<210> 8  
<211> 5229  
<212> DNA  
<213> Mus musculus

<400> 8  
ggcgggtgaag ggggtgatgct gttcaagctc ctgcagagac agacctatac ctgcctatcc 60  
cacaggatatg ggctctacgt ctgcttcgtg ggcgtcgttg tcaccatcgt ctcggttttc 120  
cagttcggag aggtgggttct ggaatggagc cgagatcagt accatgtttt gtttgattcc 180  
tacagagaca acattgctgg gaaatccttt cagaatcggc tctgtctgcc catgccaatc 240  
gacgtgggtt acacctgggt gaatggcact gaccttgaac tgctaaagga gctacagcag 300  
gtccgagagc acatggagga agagcagaga gccatgcggg aaaccctcgg gaagaacaca 360  
accgaaccga caaagaagag tgagaagcag ctggaatgtc tgctgacgca ctgcattaag 420  
gtgcccattgc ttgttctgga cccggccctg ccagccacca tcaccctgaa ggatctgcca 480  
accctttacc catctttcca cgcgtccagc gacatgttca atgttgcgaa accaaaaaat 540  
ccgtctacaa atgtccccgt tgctgttttt gacactacta aggatgttga agacgcccatt 600  
gctggaccgt ttaaggagg ccagcaaaca gatgtttgga gagcctactt gacaacagac 660

aaagacgccc	ctggcttagt	gctgatacaa	ggcttggcgt	tctgagtg	attcccaccg	720
accttcaagg	agacgagtca	actgaagaca	aagctgccaa	gaaaagcttt	ccctctaaaa	780
ataaagctgt	tgcggctgta	ctcggaggcc	agtgtcgctc	ttctgaaatt	gaataatccc	840
aagggtttcc	aagagctgaa	caagcagacc	aagaagaaca	tgaccatcga	tgggaaggaa	900
ctgaccatca	gccctgcgta	tctgctgtgg	gacctgagtg	ccatcagcca	gtccaagcag	960
gatgaggacg	cgtctgccag	ccgctttgag	gataatgaag	agctgaggta	ctcgctgcga	1020
tctatcgaga	gacacgcgcc	atgggtacgg	aatattttca	ttgtcaccaa	cgggcagatt	1080
ccatcctggc	tgaaccttga	caaccctcga	gtgaccatag	tgaccaccca	ggacattttc	1140
caaaatctga	gccacttgcc	tactttcagt	tcccctgcta	ttgaaagtca	cattcaccgc	1200
atcgaagggc	tgtcccagaa	gtttatttat	ctaaatgacg	atgtcatgtt	cggtaaggac	1260
gtctggccgg	acgattttta	cagccactcc	aaaggtcaaa	aggttttatt	gacatggcct	1320
gtgccaaact	gtgcagaggg	ctgcccgggc	tcttgataa	aggacggcta	ttgtgataag	1380
gcctgtaata	cctcaccctg	tgactgggat	ggcggaaact	gctctggtaa	tactgcaggg	1440
aaccggtttg	ttgcaagagg	tgggggtacc	gggaatattg	gagctggaca	gcactggcag	1500
tttggtggag	gaataaacac	catctcttac	tgtaaccaag	gatgtgcaaa	ctcctggctg	1560
gctgacaagt	tctgtgacca	agcctgtaac	gtcttatcct	gcgggtttga	tgctggtgac	1620
tgtggacaag	atcattttca	tgaattgtat	aaagtaacac	ttctcccaaa	ccagactcac	1680
tatgttgtcc	ccaaaggtga	atacctgtct	tatttcagct	ttgcaaakat	agccagaaaa	1740
agaattgaag	ggacctacag	cgacaacccc	atcatccgcc	acgcgtccat	tgcaaacaag	1800
tgaaaaaccc	tacacctgat	aatgcccggg	gggatgaacg	ccaccacgat	ctatttttaac	1860
ctcactcttc	aaaacgccaa	cgacgaagag	ttcaagatcc	agatagcagt	agaggtggac	1920
acgagggagg	cgcccaaact	gaattctaca	accagaagg	cctatgaaag	tttggttagc	1980
ccagtgcac	ctcttctca	ggctgacgtc	ccttttgaa	atgtcccaaa	agagaaacgc	2040
ttccccaaga	tcaggagaca	tgatgtaaat	gcaacaggga	gattccaaga	ggaggtgaaa	2100
atcccccg	taaatatctc	actccttccc	aaagaggccc	aggtagggct	gagcaacttg	2160
gatttgcaac	tagaacgtgg	agacatcact	ctgaaaggat	ataacttgtc	caagtcagcc	2220
ctgctaaggt	ctttcctggg	gaattcacta	gatactaaaa	taaaacctca	agctaggacc	2280
gatgaaacaa	aaggcaacct	ggaggtccca	caggaaaacc	cttctcacag	acgtccacat	2340
ggctttgctg	gtgaacacag	atcagagaga	tggactgccc	cagcaqagac	aqtgacctgt	2400

aaaggccgtg	accacgcttt	gaatccaccc	ccggtgttg	agaccaatgc	aagattggcc	2460
cagcctacac	taggcgtgac	tgtgtccaaa	gagaaccttt	caccgctgat	cgttccccc	2520
gaaagccact	tgccaaaaga	agaggagagt	gacagggcag	aaggcaatgc	tgtacctgta	2580
aaggagttag	tgccctggcag	acggttgcag	cagaattatc	caggcttttt	gccctgggag	2640
aaaaaaaaagt	atttccaaga	ccttcttgat	gaggaagagt	cattgaagac	ccagttggcg	2700
tactttacag	accgcaaaca	taccgggagg	caactaaaag	atacatttgc	agactccctc	2760
cgatacgtca	ataaaattct	caacagcaag	tttggaattca	catccaggaa	agtccttgca	2820
cacatgccgc	acatgattga	caggatcggt	atgcaagaac	tccaagatat	gttccctgaa	2880
gaatttgaca	agacttcatt	tcacaagggtg	cgtcactctg	aggacatgca	gtttgccttc	2940
tcctactttt	attacctcat	gagtgcagtt	cagcccctca	atatttccca	agtctttcat	3000
gaagtagaca	cagaccaatc	tggtgtcttg	tctgataggg	aatccgaac	wctggccacg	3060
agaattcacg	acctaccttt	aagcttgcag	gatttgacag	gtttggaaca	catgttaata	3120
aattgctcaa	aatgctccc	cgctaatatc	actcaactca	acaacatccc	accgactcag	3180
gaagcatact	acgaccccaa	cctgcctccg	gtcactaaga	gtcttgtcac	caactgtaag	3240
ccagtaactg	acaagatcca	caaagcctat	aaagacaaga	acaaatacag	gtttgaaatc	3300
atgggagagg	aagaaatcgc	tttcaagatg	atacgaacca	atgtttctca	tgtggttgggt	3360
cagttggatg	acatcagaaa	aaaccccagg	aagttcgttt	gtctgaatga	caacattgac	3420
cacaaccata	aagatgcccg	gacagtgaag	gctgtcctca	gggacttcta	tgagtccatg	3480
tttcccatac	cttcccagtt	tgagctgcca	agagagtatc	ggaaccgctt	tctgcacatg	3540
catgagctcc	aagaatggcg	ggcatatcga	gacaagctga	agttttggac	ccactgcgta	3600
ctagcaacgt	tgattatatt	tactatattc	tcattttttg	ctgaacagat	aattgctctg	3660
aagcgaaga	tatttcccag	gaggaggata	cacaaagaag	ctagtccaga	ccgaatcagg	3720
gtgtagaaga	tcttcatttg	aaagtcacct	accttagcat	ctgtgaacat	ctccctcctc	3780
gacaccacag	cggagtcctt	gtgatgtggc	acagaggcag	cctcgtgggg	agaagggaca	3840
tcgtgcagac	cgggttcttc	tgcaatggga	agagagccca	ctgacctgga	attattcagc	3900
acactaagaa	cctgtgtcaa	tagcttgtac	agcttgtact	tttaaaggat	ttgccgaagg	3960
acctgtcggc	ttgttgacaa	acctcctctg	acaagctgct	ggtttcttcc	cccagttact	4020
gcgactgag	aaaccagtcc	atcttgaaag	caagtgcgga	ggggcccccag	tctttgcatt	4080

```

ccaaagcttt ccagcataat ttctggcttg tctcctcctt tgatccattt cccatttttt 4140
tttaaaaaaac aataagtggc tactaagtta gtcattctca cttctcaaaa taacaaatca 4200
ggatgtcaaa acatttgtat agatcttatt taaataatat agaacgatta cttcttttagc 4260
ctatctaaat tattgatttt tattaacagt caagtggctt tgaaccgcta acaactactg 4320
aagagctcga gattgacgtt gaaagtgtt tgagcttgtt taactcattc cccaagaata 4380
ctgtgacctc gtgtgcgggc ctgattgcga agggctagtg tcacgtagca gtgctgctca 4440
ccggatgtaa ttatgtcgtg gaaatgtaca tacagacaaa agtgcctcac ttcagaaatg 4500
agtagtgctg atggcaccag cgagtgatgg tgtccatttg gaaacccatg ataccttcca 4560
atgcccaccc tgcttacttt atacagagca ggggttaacc aacttctgtc aaagaacagt 4620
aaagaacttg agatacatcc atcttctgtc aatagttttc cttgctaaca tttattattg 4680
ttggtgtttt gggaggttta ttttatttta ttgctttgtt atttttcaag acggggattc 4740
tctgtgtagc tctggctgtt tggttaattca ctctaaagac caggctggcc ttgaacttag 4800
agattcacct gcttctgctt cctgaatggg aggacatgtg cccacattgc ctaccaccc 4860
cccttttggg ggggggtgagc aactcaataa aaagatgaaa acctgcttta gtttgcagct 4920
atacaaaagc agcaggcctc agccagactt gacccccggg gccattgttg gccacggga 4980
gaatcatttt tgacgtgggt aagcaaacc cagatattgg catgctgtgt tatgtcatta 5040
tgtggtgggt ttgaattttg gaagatattt tcagtcatga tttcagtagt attcctccaa 5100
aatggcacac atttttgtaa taagaacttg aaatgtaaat attgtgtttg tgctgtaaat 5160
tttgtgtatt tcaaaaactg aagtttcata aaaaaacaca cttattggaa aaaaaaaaaa 5220
aaaaaaaaa 5229

```

```

<210> 9
<211> 908
<212> PRT
<213> Mus musculus

```

```

<400> 9

```

```

Met Leu Phe Lys Leu Leu Gln Arg Gln Thr Tyr Thr Cys Leu Ser His
1           5           10           15

```

```

Arg Tyr Gly Leu Tyr Val Cys Phe Val Gly Val Val Val Thr Ile Val
          20           25           30

```

```

Ser Ala Phe Gln Phe Gly Glu Val Val Leu Glu Trp Ser Arg Asp Gln

```

1002330-12101

35	40	45
Tyr His Val Leu Phe Asp Ser Tyr Arg Asp Asn Ile Ala Gly Lys Ser		
50	55	60
Phe Gln Asn Arg Leu Cys Leu Pro Met Pro Ile Asp Val Val Tyr Thr		
65	70	75
Trp Val Asn Gly Thr Asp Leu Glu Leu Leu Lys Glu Leu Gln Gln Val		
	85	90
Arg Glu His Met Glu Glu Glu Gln Arg Ala Met Arg Glu Thr Leu Gly		
	100	105
Lys Asn Thr Thr Glu Pro Thr Lys Lys Ser Glu Lys Gln Leu Glu Cys		
	115	120
Leu Leu Thr His Cys Ile Lys Val Pro Met Leu Val Leu Asp Pro Ala		
	130	135
Leu Pro Ala Thr Ile Thr Leu Lys Asp Leu Pro Thr Leu Tyr Pro Ser		
	145	150
Phe His Ala Ser Ser Asp Met Phe Asn Val Ala Lys Pro Lys Asn Pro		
	165	170
Ser Thr Asn Val Pro Val Val Val Phe Asp Thr Thr Lys Asp Val Glu		
	180	185
Asp Ala His Ala Gly Pro Phe Lys Gly Gly Gln Gln Thr Asp Val Trp		
	195	200
Arg Ala Tyr Leu Thr Thr Asp Lys Asp Ala Pro Gly Leu Val Leu Ile		
	210	215
Gln Gly Leu Ala Phe Leu Ser Gly Phe Pro Pro Thr Phe Lys Glu Thr		
	225	230
Ser Gln Leu Lys Thr Lys Leu Pro Arg Lys Ala Phe Pro Leu Lys Ile		
	245	250
Lys Leu Leu Arg Leu Tyr Ser Glu Ala Ser Val Ala Leu Leu Lys Leu		
	260	265
		270



Asn Asn Pro Lys Gly Phe Gln Glu Leu Asn Lys Gln Thr Lys Lys Asn  
275 280 285

Met Thr Ile Asp Gly Lys Glu Leu Thr Ile Ser Pro Ala Tyr Leu Leu  
290 295 300

Trp Asp Leu Ser Ala Ile Ser Gln Ser Lys Gln Asp Glu Asp Ala Ser  
305 310 315 320

Ala Ser Arg Phe Glu Asp Asn Glu Glu Leu Arg Tyr Ser Leu Arg Ser  
325 330 335

Ile Glu Arg His Ala Pro Trp Val Arg Asn Ile Phe Ile Val Thr Asn  
340 345 350

Gly Gln Ile Pro Ser Trp Leu Asn Leu Asp Asn Pro Arg Val Thr Ile  
355 360 365

Val Thr His Gln Asp Ile Phe Gln Asn Leu Ser His Leu Pro Thr Phe  
370 375 380

Ser Ser Pro Ala Ile Glu Ser His Ile His Arg Ile Glu Gly Leu Ser  
385 390 395 400

Gln Lys Phe Ile Tyr Leu Asn Asp Asp Val Met Phe Gly Lys Asp Val  
405 410 415

Trp Pro Asp Asp Phe Tyr Ser His Ser Lys Gly Gln Lys Val Tyr Leu  
420 425 430

Thr Trp Pro Val Pro Asn Cys Ala Glu Gly Cys Pro Gly Ser Trp Ile  
435 440 445

Lys Asp Gly Tyr Cys Asp Lys Ala Cys Asn Thr Ser Pro Cys Asp Trp  
450 455 460

Asp Gly Gly Asn Cys Ser Gly Asn Thr Ala Gly Asn Arg Phe Val Ala  
465 470 475 480

Arg Gly Gly Gly Thr Gly Asn Ile Gly Ala Gly Gln His Trp Gln Phe  
485 490 495

Gly Gly Gly Ile Asn Thr Ile Ser Tyr Cys Asn Gln Gly Cys Ala Asn  
500 505 510

Ser Trp Leu Ala Asp Lys Phe Cys Asp Gln Ala Cys Asn Val Leu Ser  
515 520 525

Cys Gly Phe Asp Ala Gly Asp Cys Gly Gln Asp His Phe His Glu Leu  
530 535 540

Tyr Lys Val Thr Leu Leu Pro Asn Gln Thr His Tyr Val Val Pro Lys  
545 550 555 560

Gly Glu Tyr Leu Ser Tyr Phe Ser Phe Ala Asn Ile Ala Arg Lys Arg  
565 570 575

Ile Glu Gly Thr Tyr Ser Asp Asn Pro Ile Ile Arg His Ala Ser Ile  
580 585 590

Ala Asn Lys Trp Lys Thr Leu His Leu Ile Met Pro Gly Gly Met Asn  
595 600 605

Ala Thr Thr Ile Tyr Phe Asn Leu Thr Leu Gln Asn Ala Asn Asp Glu  
610 615 620

Glu Phe Lys Ile Gln Ile Ala Val Glu Val Asp Thr Arg Glu Ala Pro  
625 630 635 640

Lys Leu Asn Ser Thr Thr Gln Lys Ala Tyr Glu Ser Leu Val Ser Pro  
645 650 655

Val Thr Pro Leu Pro Gln Ala Asp Val Pro Phe Glu Asp Val Pro Lys  
660 665 670

Glu Lys Arg Phe Pro Lys Ile Arg Arg His Asp Val Asn Ala Thr Gly  
675 680 685

Arg Phe Gln Glu Glu Val Lys Ile Pro Arg Val Asn Ile Ser Leu Leu  
690 695 700

Pro Lys Glu Ala Gln Val Arg Leu Ser Asn Leu Asp Leu Gln Leu Glu  
705 710 715 720



Lys Phe Gly Phe Thr Ser Arg Lys Val Pro Ala His Met Pro His Met  
20 25 30

Ile Asp Arg Ile Val Met Gln Glu Leu Gln Asp Met Phe Pro Glu Glu  
35 40 45

Phe Asp Lys Thr Ser Phe His Lys Val Arg His Ser Glu Asp Met Gln  
50 55 60

Phe Ala Phe Ser Tyr Phe Tyr Tyr Leu Met Ser Ala Val Gln Pro Leu  
65 70 75 80

Asn Ile Ser Gln Val Phe His Glu Val Asp Thr Asp Gln Ser Gly Val  
85 90 95

Leu Ser Asp Arg Glu Ile Arg Thr Leu Ala Thr Arg Ile His Asp Leu  
100 105 110

Pro Leu Ser Leu Gln Asp Leu Thr Gly Leu Glu His Met Leu Ile Asn  
115 120 125

Cys Ser Lys Met Leu Pro Ala Asn Ile Thr Gln Leu Asn Asn Ile Pro  
130 135 140

Pro Thr Gln Glu Ala Tyr Tyr Asp Pro Asn Leu Pro Pro Val Thr Lys  
145 150 155 160

Ser Leu Val Thr Asn Cys Lys Pro Val Thr Asp Lys Ile His Lys Ala  
165 170 175

Tyr Lys Asp Lys Asn Lys Tyr Arg Phe Glu Ile Met Gly Glu Glu Glu  
180 185 190

Ile Ala Phe Lys Met Ile Arg Thr Asn Val Ser His Val Val Gly Gln  
195 200 205

Leu Asp Asp Ile Arg Lys Asn Pro Arg Lys Phe Val Cys Leu Asn Asp  
210 215 220

Asn Ile Asp His Asn His Lys Asp Ala Arg Thr Val Lys Ala Val Leu  
225 230 235 240

10023390 122104

Arg Asp Phe Tyr Glu Ser Met Phe Pro Ile Pro Ser Gln Phe Glu Leu  
 245 250 255

Pro Arg Glu Tyr Arg Asn Arg Phe Leu His Met His Glu Leu Gln Glu  
 260 265 270

Trp Arg Ala Tyr Arg Asp Lys Leu Lys Phe Trp Thr His Cys Val Leu  
 275 280 285

Ala Thr Leu Ile Ile Phe Thr Ile Phe Ser Phe Phe Ala Glu Gln Ile  
 290 295 300

Ile Ala Leu Lys Arg Lys Ile Phe Pro Arg Arg Arg Ile His Lys Glu  
 305 310 315 320

Ala Ser Pro Asp Arg Ile Arg Val  
 325

<210> 11  
 <211> 2070  
 <212> DNA  
 <213> Mus musculus

<220>  
 <221> misc\_feature  
 <222> (186)..(186)  
 <223> n is a, t, c, or g

<400> 11  
 gtgagaccct aggagcaatg gccgggcggc tggtctggtt cctgatgttg ctggggctcg 60  
 cgtcgcaggg gcccgcgccg gcatgtgccg ggaagatgaa ggtggtggag gagcctaaca 120  
 cattcgggtg agcggatcac ggtcctgcgg cttgggggacc gagcctggct ggttcttctg 180  
 accttntcaa ttccataggc tgaataaccc gttcttgccc caggcaagcc gccttcagcc 240  
 caagagagag ccttcagctg tatcccgcaa attaagagaa attaatttca aacgatttag 300  
 aaagtattct agccaggcga tgatggcgca cgcctttaat ccagcactt gggaggcaga 360  
 ggcaggcaga tttccgagtt caaggccatc agaactgact gtacatctta gtacagttta 420  
 gcatgtgata agagatctga atcaciaaagc tgggcctgcg tggtaaagca ggtcctttct 480  
 aataagggtg cagtttagat tttctttctt aactctttta ttctttgaga cagggtttct 540  
 caacagtggg tgtcctggaa ctacttttg taaaccaggc tgcccttaaa ctacaciaaagc 600

tctgtcagcc tctgcctcct gagtgctggg attaaaggtc cacaccctgt tcattcattt	660
ttaattttttg agactgggtc tcattatgtg gccctagaca gatactgaga gcctcctcca	720
caggaacaag catgggaatc ctgccacaga caaccagttc tgtgggtctgg agatgagttt	780
gtcagtcctt aggagttagg tcagcctgcc tctgcattcc caataattta ggaaaggagc	840
ttggggcggt ctggccttga tgggttagtgc cctcctgcc accttagctt ccagctttag	900
gggtagcaga gtttataccg atgctaaact gctgttgtgt tcttccccag ggcccctgca	960
tctcttcaga cttgctggca agtgcttttag cctagtggag tccacgtgag tgccaggctg	1020
gtgggtggag tgggcggagt ctgcagagct cctgatgtgc ctgtgtttcc caggtacaag	1080
tatgaattct gccctttcca caacgtcacc cagcacgagc agaccttccg ctggaatgcc	1140
tacagcggga tccttggcat ctggcatgag tgggaaatca tcaacaatac cttcaagggc	1200
atgtggatga ctgatgggga ctccctgccac tcccggagcc ggagagcaa ggtggagctc	1260
acctgtggaa agatcaaccg actggccac gtgtctgagc caagcacctg tgtctatgca	1320
ttgacattcg agaccctct tgtttgcat cccactctt tgtagtgta tccaactctg	1380
tcagaagccc tgcagcagcc cttggaccag gtggaacagg acctggcaga tgaactgatc	1440
acaccacagg gctatgagaa gttgctaagg gtactttttg aggatgctgg ctacttaaag	1500
gtcccaggag aaacccatcc caccagctg gcaggagggt ccaagggcct ggggcttgag	1560
actctggaca actgtagaaa ggcacatgca gagctgtcac aggaggtaca aagactgacg	1620
agtctgctgc aacagcatgg aatccccac actcagccca caggtcagtc tgctgcctt	1680
ggtcagctgc cagccactcc ggggcctgca gcactggggc agatctttat tgctacccat	1740
tctggcagaa accactcact ctacagcact gggtcagcag ctccccatag gtgcaatcgc	1800
agcagagcat ctgcggagtg acccaggact acgtgggaac atcctgtgag caaggtggcc	1860
acgaagaata gaaatatcct gagctttgag tgtcctttca cagagtgaac aaaactgggtg	1920
tggtgtagac acggcttctt ttggcatatt ctagatcaga cagtgtcact gacaaacaag	1980
agggacctgc tggccagcct ttgttggtgcc caaagatcca gacaaaataa agattcaaag	2040
ttttaattaa aaaaaaaaaa aaaggaattc	2070

<210> 12  
 <211> 307  
 <212> PRT  
 <213> Mus musculus  
 <400> 12



Thr His Pro Thr Gln Leu Ala Gly Gly Ser Lys Gly Leu Gly Leu Glu  
225 230 235 240

Thr Leu Asp Asn Cys Arg Lys Ala His Ala Glu Leu Ser Gln Glu Val  
245 250 255

Gln Arg Leu Thr Ser Leu Leu Gln Gln His Gly Ile Pro His Thr Gln  
260 265 270

Pro Thr Glu Thr Thr His Ser Gln His Leu Gly Gln Gln Leu Pro Ile  
275 280 285

Gly Ala Ile Ala Ala Glu His Leu Arg Ser Asp Pro Gly Leu Arg Gly  
290 295 300

Asn Ile Leu  
305

<210> 13  
<211> 460  
<212> DNA  
<213> Rattus rattus

<400> 13  
attcccaacca acattcaagg agacgagtca gctgaagaca aaactgccag aaaatctttc 60  
ttctaaaata aaactgttgc agctgtactc ggaggccagc gtcgctcttc tgaaattgaa 120  
taaccccaaa ggtttccccg agctgaacaa gcagaccaag aagaacatga gcatcagtgg 180  
gaaggaactg gccatcagcc ctgcctatct gctgtgggac ctgagcgcca tcagccagtc 240  
caagcaggat gaagatgtgt ctgccagccg cttcgaggat aacgaagagc tgaggtactc 300  
actgagatct atcgagagac atgattccat gagtccttta tgaattctgg ccatatcttc 360  
aatcatgatc tcagtagtat tcctctgaaa tggcacacat ttttctaata agaacttgaa 420  
atgtaaatat tgtgtttgtg ctgtaaattt tgtgtatttc 460

<210> 14  
<211> 113  
<212> PRT  
<213> Rattus rattus

<400> 14

Phe Pro Pro Thr Phe Lys Glu Thr Ser Gln Leu Lys Thr Lys Leu Pro  
1 5 10 15



Glu Asn Leu Ser Ser Lys Ile Lys Leu Leu Gln Leu Tyr Ser Glu Ala  
20 25 30

Ser Val Ala Leu Leu Lys Leu Asn Asn Pro Lys Gly Phe Pro Glu Leu  
35 40 45

Asn Lys Gln Thr Lys Lys Asn Met Ser Ile Ser Gly Lys Glu Leu Ala  
50 55 60

Ile Ser Pro Ala Tyr Leu Leu Trp Asp Leu Ser Ala Ile Ser Gln Ser  
65 70 75 80

Lys Gln Asp Glu Asp Val Ser Ala Ser Arg Phe Glu Asp Asn Glu Glu  
85 90 95

Leu Arg Tyr Ser Leu Arg Ser Ile Glu Arg His Asp Ser Met Ser Pro  
100 105 110

Leu

<210> 15  
<211> 1105  
<212> DNA  
<213> Drosophila melanogaster

<220>  
<221> misc\_feature  
<222> (903)..(903)  
<223> n is a, g, t, or c

<220>  
<221> misc\_feature  
<222> (935)..(935)  
<223> n is a, g, t, or c

<220>  
<221> misc\_feature  
<222> (1023)..(1023)  
<223> n is a, g, t, or c

<220>  
<221> misc\_feature  
<222> (1035)..(1035)  
<223> n is a, g, t, or c

<220>  
 <221> misc\_feature  
 <222> (1071)..(1071)  
 <223> n is a, g, t, or c

<220>  
 <221> misc\_feature  
 <222> (1100)..(1100)  
 <223> n is a, g, t, or c

<400> 15  
 ctgcaggaat tcggcacgag gcggttcgat gacaagaatg agctgcggta ctctctgagg 60  
 tccctggaaa aacacgccgc atggatcagg catgtgtaca tagtaaccaa tggccagatt 120  
 ccaagttggc tggatctcag ctacgaaagg gtcacgggtg tgccccacga agtcctggct 180  
 cccgatcccg accagctgcc caccttctcc agctcggcca tcgagacatt tctgcaccgc 240  
 ataccaaagc tgtccaagag gttcctctac ctcaacgacg acatattcct gggagctccg 300  
 ctgtatccgg aggacttgta cactgaagcg gagggagtgc gcgtgtacca ggcatggatg 360  
 gtgcccggct gcgccttggg ttgcccctgg acgtacatag gtgatggagc ttgcgatcgg 420  
 cactgcaaca ttgatgcgtg ccaatttgat ggaggcgact gcagtgaaac tgggccagcg 480  
 agcgatgccc acgtcattcc accaagcaaa gaagtgctcg aggtgcagcc tgccgctggt 540  
 ccacaatcaa gagtccaccg atttcctcag atgggtctcc aaaagctggt caggcgcagc 600  
 tctgccaaatt ttaaggatgt tatgcggcac cgcaatgtgt ccacactcaa ggaactacgt 660  
 cgcattgtgg agcgttttaa caaggccaaa ctcatgtcgc tgaaccccga actggagacc 720  
 tccagctccg agccacagac aactcagcgc cacgggctgc gcaaggagga ttttaagtct 780  
 tccaccgata ttactctca ctgcgtgatt gccaccaata tggtgctgaa tagagcctat 840  
 ggctttaagg cacgccatgt cctggcgcac gtgggcttcc taattgacaa ggatattgtg 900  
 gangccatgc aacgacgttt taccagcgaa ttctngacac tggccattaa cgctttccga 960  
 gcccacacag atttgcagta cgcattcgct tactacttct ttctaagag cgaaatccaa 1020  
 gtnatgagtg tagangaaat cttcgatgaa gtcgacaccg gacggtttgg ncacctggtc 1080  
 ggatccagaa gtgcgaaccn tttta 1105

<210> 16  
 <211> 502  
 <212> PRT  
 <213> Drosophila melanogaster

<400> 16

Gly Thr Arg Arg Phe Asp Asp Lys Asn Glu Leu Arg Tyr Ser Leu Arg  
1 5 10 15

Ser Leu Glu Lys His Ala Ala Trp Ile Arg His Val Tyr Ile Val Thr  
20 25 30

Asn Gly Gln Ile Pro Ser Trp Leu Asp Leu Ser Tyr Glu Arg Val Thr  
35 40 45

Val Val Pro His Glu Val Leu Ala Pro Asp Pro Asp Gln Leu Pro Thr  
50 55 60

Phe Ser Ser Ser Ala Ile Glu Thr Phe Leu His Arg Ile Pro Lys Leu  
65 70 75 80

Ser Lys Arg Phe Leu Tyr Leu Asn Asp Asp Ile Phe Leu Gly Ala Pro  
85 90 95

Leu Tyr Pro Glu Asp Leu Tyr Thr Glu Ala Glu Gly Val Arg Val Tyr  
100 105 110

Gln Ala Trp Met Val Pro Gly Cys Ala Leu Asp Cys Pro Trp Thr Tyr  
115 120 125

Ile Gly Asp Gly Ala Cys Asp Arg His Cys Asn Ile Asp Ala Cys Gln  
130 135 140

Phe Asp Gly Gly Asp Cys Ser Glu Thr Gly Pro Ala Ser Asp Ala His  
145 150 155 160

Val Ile Pro Pro Ser Lys Glu Val Leu Glu Val Gln Pro Ala Ala Val  
165 170 175

Pro Gln Ser Arg Val His Arg Phe Pro Gln Met Gly Leu Gln Lys Leu  
180 185 190

Phe Arg Arg Ser Ser Ala Asn Phe Lys Asp Val Met Arg His Arg Asn  
195 200 205

Val Ser Thr Leu Lys Glu Leu Arg Arg Ile Val Glu Arg Phe Asn Lys  
210 215 220

Ala Lys Leu Met Ser Leu Asn Pro Glu Leu Glu Thr Ser Ser Ser Glu  
225 230 235 240

Pro Gln Thr Thr Gln Arg His Gly Leu Arg Lys Glu Asp Phe Lys Ser  
245 250 255

Ser Thr Asp Ile Tyr Ser His Ser Leu Ile Ala Thr Asn Met Leu Leu  
260 265 270

Asn Arg Ala Tyr Gly Phe Lys Ala Arg His Val Leu Ala His Val Gly  
275 280 285

Phe Leu Ile Asp Lys Asp Ile Val Glu Ala Met Gln Arg Arg Phe His  
290 295 300

Gln Gln Ile Leu Asp Thr Ala His Gln Arg Phe Arg Ala Pro Thr Asp  
305 310 315 320

Leu Gln Tyr Ala Phe Ala Tyr Tyr Ser Phe Leu Met Ser Glu Thr Lys  
325 330 335

Val Met Ser Val Glu Glu Ile Phe Asp Glu Phe Asp Thr Asp Gly Ser  
340 345 350

Ala Thr Trp Ser Asp Arg Glu Val Arg Thr Phe Leu Thr Arg Ile Tyr  
355 360 365

Gln Pro Pro Leu Asp Trp Ser Ala Met Arg Tyr Phe Glu Glu Val Val  
370 375 380

Gln Asn Cys Thr Arg Asn Leu Gly Met His Leu Lys Val Asp Thr Val  
385 390 395 400

Glu His Ser Thr Leu Val Tyr Glu Arg Tyr Glu Asp Ser Asn Leu Pro  
405 410 415

Thr Ile Thr Arg Asp Leu Val Val Arg Cys Pro Leu Leu Ala Glu Ala  
420 425 430

Leu Ala Ala Asn Phe Ala Val Arg Pro Lys Tyr Asn Phe His Val Ser  
435 440 445

Pro Lys Arg Thr Ser His Ser Asn Phe Met Met Leu Thr Ser Asn Leu  
 450 455 460

Thr Glu Val Val Glu Ser Leu Asp Arg Leu Arg Arg Asn Pro Arg Lys  
 465 470 475 480

Phe Asn Cys Ile Asn Asp Asn Leu Asp Ala Asn Arg Gly Glu Asp Asn  
 485 490 495

Glu Asp Gly Ala Pro Ser  
 500

<210> 17

<211> 2183

<212> DNA

<213> Homo sapiens

<400> 17

atggcgacct ccacgggtcg ctggcttctc ctccggcttg cactattcgg cttcctctgg	60
gaagcgtccg gcggcctcga ctcgggggcc tcccgcgacg acgacttgct actgccttat	120
ccacgcgcgc gcgcgcgcct cccccgggac tgacacacggg tgcgcgccgg caaccgcgag	180
cacgagagtt ggctccgcc tcccgcgact cccggcgccg gcggtctggc cgtgcgaccc	240
ttcgtgtcgc acttcagggg ccgcgcggtg gccggccacc tgacgcgggc cgttgagccc	300
ctgcgcacct tctcgggtgt ggagcccgtt ggacccggcg gctgcgcggc gagacgacgc	360
gccaccgtgg aggagacggc gcgggcggcc gactgccgtg tcgcccagaa cggcggcttc	420
ttccgcatga actcgggcga gtgcctgggg aacgtggtga gcgacgagcg gcgggtgagc	480
agctccgggg ggctgcagaa cgcgcagttc gggatccgcc gcgacgggac cctggtcacc	540
gggtacctgt ctgaggagga ggtgctggac actgagaacc catttggtgca gctgctgagt	600
ggggtcgtgt ggctgattcg taatggaagc atctacatca acgagagcca agccacagag	660
tgtgacgaga cacaggagac aggttccttt agcaaatttg tgaatgtgat atcagccagg	720
acggccattg gccacgaccg gaaagggcag ctggtgctct ttcattgcaga cggccatacg	780
gagcagcgtg gcatcaacct gtgggaaatg gcggagttcc tgctgaaaca ggacgtggtc	840
aacgccatca acctggatgg ggggtggctct gccacctttg tgctcaacgg gaccttggcc	900
agttaccctg cagatcactg ccaggacaac atgtggcgct gtccccgcca agtgtccacc	960
gtgggtgtgtg tgcaacgaacc ccgctgccag ccgcctgact gccacggcca cgggacctgc	1020

10023890.123104



35	40	45																	
Arg	Asp	Cys	Thr	Arg	Val	Arg	Ala	Gly	Asn	Arg	Glu	His	Glu	Ser	Trp				
50						55					60								
Pro	Pro	Pro	Pro	Ala	Thr	Pro	Gly	Ala	Gly	Gly	Leu	Ala	Val	Arg	Thr				
65					70					75					80				
Phe	Val	Ser	His	Phe	Arg	Asp	Arg	Ala	Val	Ala	Gly	His	Leu	Thr	Arg				
				85					90					95					
Ala	Val	Glu	Pro	Leu	Arg	Thr	Phe	Ser	Val	Leu	Glu	Pro	Gly	Gly	Pro				
			100					105					110						
Gly	Gly	Cys	Ala	Ala	Arg	Arg	Arg	Ala	Thr	Val	Glu	Glu	Thr	Ala	Arg				
		115					120					125							
Ala	Ala	Asp	Cys	Arg	Val	Ala	Gln	Asn	Gly	Gly	Phe	Phe	Arg	Met	Asn				
130						135					140								
Ser	Gly	Glu	Cys	Leu	Gly	Asn	Val	Val	Ser	Asp	Glu	Arg	Arg	Val	Ser				
145					150					155					160				
Ser	Ser	Gly	Gly	Leu	Gln	Asn	Ala	Gln	Phe	Gly	Ile	Arg	Arg	Asp	Gly				
				165					170					175					
Thr	Leu	Val	Thr	Gly	Tyr	Leu	Ser	Glu	Glu	Glu	Val	Leu	Asp	Thr	Glu				
			180					185					190						
Asn	Pro	Phe	Val	Gln	Leu	Leu	Ser	Gly	Val	Val	Trp	Leu	Ile	Arg	Asn				
		195					200					205							
Gly	Ser	Ile	Tyr	Ile	Asn	Glu	Ser	Gln	Ala	Thr	Glu	Cys	Asp	Glu	Thr				
	210					215					220								
Gln	Glu	Thr	Gly	Ser	Phe	Ser	Lys	Phe	Val	Asn	Val	Ile	Ser	Ala	Arg				
225					230					235					240				
Thr	Ala	Ile	Gly	His	Asp	Arg	Lys	Gly	Gln	Leu	Val	Leu	Phe	His	Ala				
				245					250					255					
Asp	Gly	His	Thr	Glu	Gln	Arg	Gly	Ile	Asn	Leu	Trp	Glu	Met	Ala	Glu				
			260					265					270						

Phe Leu Leu Lys Gln Asp Val Val Asn Ala Ile Asn Leu Asp Gly Gly  
275 280 285

Gly Ser Ala Thr Phe Val Leu Asn Gly Thr Leu Ala Ser Tyr Pro Ser  
290 295 300

Asp His Cys Gln Asp Asn Met Trp Arg Cys Pro Arg Gln Val Ser Thr  
305 310 315 320

Val Val Cys Val His Glu Pro Arg Cys Gln Pro Pro Asp Cys His Gly  
325 330 335

His Gly Thr Cys Val Asp Gly His Cys Gln Cys Thr Gly His Phe Trp  
340 345 350

Arg Gly Pro Gly Cys Asp Glu Leu Asp Cys Gly Pro Ser Asn Cys Ser  
355 360 365

Gln His Gly Leu Cys Thr Glu Thr Gly Cys Arg Cys Asp Ala Gly Trp  
370 375 380

Thr Gly Ser Asn Cys Ser Glu Glu Cys Pro Leu Gly Trp His Gly Pro  
385 390 395 400

Gly Cys Gln Arg Arg Cys Lys Cys Glu His His Cys Pro Cys Asp Pro  
405 410 415

Lys Thr Gly Asn Cys Ser Val Ser Arg Val Lys Gln Cys Leu Gln Pro  
420 425 430

Pro Glu Ala Thr Leu Arg Ala Gly Glu Leu Ser Phe Phe Thr Arg Thr  
435 440 445

Ala Trp Leu Ala Leu Thr Leu Ala Leu Ala Phe Leu Leu Leu Ile Ser  
450 455 460

Ile Ala Ala Asn Leu Ser Leu Leu Leu Ser Arg Ala Glu Arg Asn Arg  
465 470 475 480

Arg Leu His Gly Asp Tyr Ala Tyr His Pro Leu Gln Glu Met Asn Gly  
485 490 495



Glu Pro Leu Ala Ala Glu Lys Glu Gln Pro Gly Gly Ala His Asn Pro  
 500 505 510

Phe Lys Asp  
 515

<210> 19  
 <211> 2005  
 <212> DNA  
 <213> Mus musculus

<400> 19  
 gtttcccgcg acgatgacct gctgctgcct taccactag cgcgcagacg tccctcgcga 60  
 gactgcgccc ggggtgcgctc aggtagccca gagcaggaga gctggcctcc gccacctctg 120  
 gccaccacag aaccccgggc gccaaagccac cacgcggccg tgcgcacctt cgtgtcgcac 180  
 ttcgaggggc gcgcggtggc cggccacctg acgcgggtcg ccgatcccct acgcactttc 240  
 tcggtgctgg agcccggagg agccgggggc tgcggcgga gaagcgccgc ggctactgtg 300  
 gaggacacag ccgtccgggc cggttgccgc atcgctcaga acggtggctt cttccgcatg 360  
 agcactggcg agtgcttggg gaacgtggtg agcgacgggc ggctggtgag cagctcaggg 420  
 ggactgcaga acgcgcagtt cggtatccga cgcgatggaa ccatagtcac cgggtcctgt 480  
 cttgaagaag aggttctgga tcccgtgaat ccgttcgtgc agctgctgag cggagtcgtg 540  
 tggctcatcc gcaatggaaa catctacatc aacgagagcc aagccatcga gtgtgacgag 600  
 acacaggaga caggttcttt tagcaaattt gtgaatgtga tgtcagccag gacagccgtg 660  
 ggtcatgacc gtgaggggca gcttatcctc ttccatgctg atggacagac ggaacagcgt 720  
 ggccttaacc tatgggagat ggcagagttc ctgctcaac aagatgtcgt caatgccatc 780  
 aacctggatg gaggcggttc tgctactttt gtgctcaatg ggaccctggc cagttaccct 840  
 tcagatcact gccaggacaa catgtggcgc tgtccccgcc aagtgtccac tgtggtgtgt 900  
 gtgcatgaac cgcgctgcca gccacccgac tgcagtggcc atgggacctg tgtggatggc 960  
 cactgtgaat gcaccagcca cttctggcgc ggcgaggcct gcagcgagct ggactgtggc 1020  
 ccctccaact gcagccagca tgggctgtgc acagctggct gccactgtga tgctgggtgg 1080  
 acaggatcca actgcagtga agagtgtcct ctgggctggt atgggcccagg ttgccagagg 1140  
 ccctgccagt gtgagcacca gtgtttctgt gacccgcaga ctggcaactg cagcatctcc 1200  
 caagtgaggc agtgtctcca gccaaactgag gctacgccga gggcaggaga gctggcctct 1260

100330 1234

ttcaccagga ccacctgggt agccctcacc ctgacactaa ttttcctgct gctgatcagc 1320  
 actgggggtca acgtgtcctt gttcctgggc tccagggccg agaggaaccg gcacctcgac 1380  
 ggggactatg tgtatcaccc actgcaggag gtgaacgggg aagcgctgac tgcagagaag 1440  
 gagcacatgg aggaaactag caacccttc aaggactgaa gagctgcccc aacggcatgc 1500  
 tccagataat cttgtccctg ctccctcactt ccacagggga cattgtgagg ccaactggcat 1560  
 ggatgctatg caccaccacc tttgctggcc atattcctcc tgtcccatg ctgtgggtca 1620  
 tgccaaccta gcaataagga gctctggaga gcctgcacct gcctcccgct cgcctatata 1680  
 tgctgcccag aggctgtct cgcacagggg tctcgccact gccaaagact cccaggaagt 1740  
 caaagactcc cagtaatcca ctagcaaata gaactctgta acgcatcat aacaagagt 1800  
 gccactctcc gcgtgcacag gtatgaaata taaatcctta cacacacaca cacacacacc 1860  
 ctcggtcag ccacggcact cgccttttat acagcgctcat cgctggacag ccaactagaa 1920  
 ctctgcatcc tgtcacagga agcacctcat aagaaggaat ggggagggaa ggcagtcgcc 1980  
 ttgttttcag accttagccg aattc 2005

<210> 20  
 <211> 492  
 <212> PRT  
 <213> Mus musculus

<400> 20

Val Ser Arg Asp Asp Asp Leu Leu Leu Pro Tyr Pro Leu Ala Arg Arg  
 1 5 10 15  
 Arg Pro Ser Arg Asp Cys Ala Arg Val Arg Ser Gly Ser Pro Glu Gln  
 20 25 30  
 Glu Ser Trp Pro Pro Pro Pro Leu Ala Thr His Glu Pro Arg Ala Pro  
 35 40 45  
 Ser His His Ala Ala Val Arg Thr Phe Val Ser His Phe Glu Gly Arg  
 50 55 60  
 Ala Val Ala Gly His Leu Thr Arg Val Ala Asp Pro Leu Arg Thr Phe  
 65 70 75 80  
 Ser Val Leu Glu Pro Gly Gly Ala Gly Gly Cys Gly Gly Arg Ser Ala  
 85 90 95



His Cys Glu Cys Thr Ser His Phe Trp Arg Gly Glu Ala Cys Ser Glu  
325 330 335

Leu Asp Cys Gly Pro Ser Asn Cys Ser Gln His Gly Leu Cys Thr Ala  
340 345 350

Gly Cys His Cys Asp Ala Gly Trp Thr Gly Ser Asn Cys Ser Glu Glu  
355 360 365

Cys Pro Leu Gly Trp Tyr Gly Pro Gly Cys Gln Arg Pro Cys Gln Cys  
370 375 380

Glu His Gln Cys Phe Cys Asp Pro Gln Thr Gly Asn Cys Ser Ile Ser  
385 390 395 400

Gln Val Arg Gln Cys Leu Gln Pro Thr Glu Ala Thr Pro Arg Ala Gly  
405 410 415

Glu Leu Ala Ser Phe Thr Arg Thr Thr Trp Leu Ala Leu Thr Leu Thr  
420 425 430

Leu Ile Phe Leu Leu Leu Ile Ser Thr Gly Val Asn Val Ser Leu Phe  
435 440 445

Leu Gly Ser Arg Ala Glu Arg Asn Arg His Leu Asp Gly Asp Tyr Val  
450 455 460

Tyr His Pro Leu Gln Glu Val Asn Gly Glu Ala Leu Thr Ala Glu Lys  
465 470 475 480

Glu His Met Glu Glu Thr Ser Asn Pro Phe Lys Asp  
485 490

<210> 21  
<211> 9792  
<212> DNA  
<213> Mus musculus

<400> 21  
caggctcggg acttactata acacaggaca cttgtcacct gaaagcttga gtcagtcagt 60  
tattatgggc tgtgtgtgag atacaagtgg gtgcataggc agtgggtgcac acatgtagat 120  
cagactttct acagccaatt ctcttcttcc tcctctccat gggttcaggg tcttcatctc 180  
aggttgcaca gcgagttcat ttatgtgctg tgccatctcg ccagtcgttc ctatatacta 240

gaggaaaact	agtttcttct	ggtcaagagg	aggaaagagt	ggagacctgt	cattctaaga	300
tacccaaaac	agggccaggt	tggggacctg	tgcctttaat	cccatcactt	ggggattagg	360
tagaagcaag	aggctctaga	ccagtctaca	cactgaatth	caagccagcc	tacctataaa	420
tcagagaccc	tgcttcaaaa	ataaaaattaa	acaaaaacga	agataaacca	agctacccaa	480
aacacaagag	ttaatccagt	cagacagggt	tagcaaatgc	taggatgaaa	ggtgtgcacc	540
accacgagtg	ggctgcaagc	ctctctctct	ctctctctct	ctctctctct	ctcgtttggt	600
ttgtttttcg	agacaagggt	tctctgtgta	gccctggctg	tcttggaact	cactctgtag	660
accaggctgg	cctcgagctt	cactcttaaa	agttcctctt	cctcctcctc	catcttttcc	720
tctctttacc	ccctaggctc	cttttctctt	tcttgtcttt	cagataaagt	ctcaagtagt	780
ccagactggg	ctcaaactaa	ctaactagcc	aagaatagcc	aacctcttaa	cttccgattc	840
tctgcctct	gctgaatgct	ggggttgtgg	cgtggggccac	cacttctggg	ttgtgcaaca	900
cagaaggaac	tagggcttta	agcacgagaa	gcaagttctg	tacagactta	cacaggccca	960
gcatctgttc	ttgcaatttt	ctgtaagttt	gacataatat	gagaataaaa	agctatctat	1020
ctcccttcca	gccttaccct	ctctgatgga	attcgaatgc	gtaatcaaag	caccaaacag	1080
cctggcctga	aatcacgtgg	ggcaagccca	cgtgaccgga	gcaccaatcc	aatatggcgg	1140
cgcccagggg	gcccgggctg	ttcctcatac	ccgcgctgct	cggttactc	gggggtggcg	1200
ggtgcagctt	aagcttcggg	tgagtgcagg	ccgcgggggc	cagcctgggt	gggggtccacc	1260
tttcttgagc	gctctcaggc	acagccctcc	gacctcacga	tcgccccgtc	cctgcagggt	1320
ttcccgcgac	gatgacctgc	tgctgcctta	cccactagcg	cgcagacgtc	cctcgcgaga	1380
ctgcgcccgg	gtgcgctcag	gtagcccaga	gcaggagagc	tggcctccgc	cacctctggc	1440
caccacgaa	ccccgggcgc	caagccacca	cgcggccgtg	cgcaccttcg	tgtcgcactt	1500
cgagggggcg	gcgggtggcg	gccacctgac	gcgggtcgcc	gatcccttac	gcactttctc	1560
ggtgctggag	cccggaggag	ccgggggctg	cggcggcaga	agcgccgcgg	ctactgtgga	1620
ggacacagcc	gtccggggcg	gttgccgcat	cgtcagaac	ggtggcttct	tccgcatgag	1680
cactggcgag	tgcttgggga	acgtgggtgag	cgaaggggcg	ctgggtgagca	gctcaggggg	1740
actgcagaac	gcgcagttcg	gtatccgacg	cgatggaacc	atagtcaccg	ggtgaggagg	1800
caggagccc	cggggctgta	gagggcaaag	ggtctctgat	gttctttcag	agccatgcct	1860
ccgagtcag	gtccctaacc	aaacttcctg	tctttcttct	tccgagtaat	gacgctgaca	1920

ccttccttcc	tttaagttta	ttcatgtgcc	actgaataat	ctgtgatcag	gccgtgtgtg	1980
gggacttggg	gaggcgaccg	tgagcctgaa	cacagtttgt	gccctagtga	acttttgtta	2040
gtattagaga	aacatttcgt	gttcaacgaa	gccatggaac	caattggaaa	tagtgtagag	2100
tttatggagc	agtcccagac	agctagctgg	aggccttttg	ctgtcctgat	aaaaatccag	2160
gtagacaag	gagcttggtg	agggcagcct	ttggaagttt	ctgtgtttct	tgaaatttga	2220
cagcagccag	agttgacagc	aggcaggcag	gagtagaagg	tagcgccatc	tggtgttcca	2280
gttctcttcc	aaggttccgt	tttttgccaa	ggctgggaag	tgggctttcc	ccaactcttc	2340
tcagcccttg	gttgcaattt	ctgggcctgc	ccatgtatct	ggttcttcat	ccttcaacat	2400
cagccagtgt	caccactggt	gatcttaggt	tttcacagat	cctaaaactt	ctgccagtga	2460
ccagcgctg	cagtttctct	tccttggtc	tgtccttcaa	cctctctaca	ttccagccat	2520
ctccctagct	cctctcttgg	actccctttc	agacttggtg	tcatgatcac	tgtctcagaa	2580
cccctattgc	tcctttacaa	tggtccactg	acctgctcac	ctcctacttt	ttttttttaa	2640
atgtgtgtgc	atctgtgtgt	gcctgagggg	agaccagagt	ttgatttcaa	atgtcttcta	2700
ttctcttttc	ctccatctta	ttttctaaca	caaaatctga	atctagagat	cactggttca	2760
gttaacctgg	ctggccggtg	aaccccgagg	ccctcctgct	tcctctgtc	cacccacccc	2820
cagcactaag	gctacagtgt	gtgctgttcc	agccagcttt	ctcatgggtg	ctgaggatct	2880
gaacgcaggt	tcacatgtgt	ggtagggaag	cttttaccca	atgctctgtc	tttccagccc	2940
atcctccctt	gttaactgcc	aaacagctgc	ctatcctgtc	catgtgtagc	tcactgctac	3000
ttcttttatt	atgagggtcag	cacatgttac	taaagatggc	aagagaagaa	ggttctttca	3060
ttgtgtcata	gctatagctc	aggaggaatt	ttatttcctg	tgtaggcaca	caggagagca	3120
tcttccagct	cacactccaa	ctgaactaac	tgaacacctg	cctatatatc	caaagaaggg	3180
gtgtcagtgc	caatcacagc	acacctccag	tgcaaatgaa	ggtttgtgtt	tgcaccaatc	3240
acagccttgc	ctcttttagc	atgcatcaca	acaaagtcct	cctagactat	caggggatat	3300
gctctcttgg	ccaaggtagg	aatagttgca	gtgtcatctg	gcacaaacca	tttcaaacgg	3360
cctggctgag	gttatgcctt	cggaacctg	aagtctttgt	gtggttgtct	ccaagtgtct	3420
gtggagctcc	aggcggctgg	tgctgacaga	cgctttgtct	agttggctgt	ttgacttttg	3480
cttaagcagc	cagggcagta	gagtctaaca	gatgctaatt	tcaggatcag	gaagactgta	3540
gaaaaatgag	catcaagaag	cccctggtac	ccaaagctgc	tcttgccaat	gagtgaacct	3600
ctgccttccc	gcttccaggt	cctgtcttga	agaagagggt	ctggatcccc	tgaatccggt	3660

cgtgcagctg	ctgagcggag	tcgtgtggct	catccgcaat	ggaaacatct	acatcaacga	3720
gagccaagcc	atcgagtgtg	acgagacaca	ggagacaggt	caggaagcac	aggtgttctg	3780
ttttatttgt	attaggtttt	gatttgttta	ttttgtgcat	gcagcgggtg	catgcatgct	3840
ccttttccttt	cgccatgtga	gtcctgagta	ttgaactcag	actgttaagt	gtgatgggag	3900
gcactttacc	cactgagcca	ctttcccagc	cctcagcatc	agctttcttc	agaccagga	3960
acagtgtgag	tgggttattc	tttagtggtc	ccaaacattt	actgagcagc	tattttactgt	4020
ttagcactat	ggtgagagtc	ctagggattc	agtcttatgt	agaatataga	aggagaatcc	4080
ttggcaataa	gctggaaaaat	tgtgacaagt	gccaagaaaag	aaacaggaga	aaggggaccg	4140
gtggggacca	gaagcacagg	tatgaggaaa	gtgcctgcag	atttgctgta	tgggtggcctc	4200
cacatggcct	aggagtthgt	cataaatgca	gagccatgag	tccaccctcc	ctatacctcc	4260
catccagaaa	ccactgggta	aatcctaaca	acttgggtgt	gcaggcactc	ccttgggtgac	4320
tctgatggac	actcaaggtc	aagggccact	tggggatggg	ctgatgagtt	ggcttgggtca	4380
gtaaagtatt	tgccctgaaa	gtgtgaggac	ctgagttgga	gccccagaaa	gaaacattaa	4440
aagccaagtg	ctgggatgca	cacttgcatt	cccagggatg	gagctggaag	gcagggatag	4500
gcagatccac	ggccacacgg	tgatattcta	agctaacaag	agacctgtct	cacacagaaa	4560
gtgggtggca	cctgaggacc	aacacccagg	gttatcctct	gacgtacctc	cagagtggaa	4620
aatactgggg	tgggtggaaa	ggacactttg	gtcctgggaa	tctggctatt	caggggtatag	4680
tgtagagggg	gagggagact	caagaggctg	tctttgagtc	aaaggaacaa	gctatcagaa	4740
gaactcaggg	cagaggcctg	tggttcccag	gctcagggca	gccttcaagg	ccctaggcag	4800
agagtagctg	ctgggtgaac	aagtacagaa	gtgaggcctg	gggcctcagg	caaggcctgt	4860
gaaatccttc	caccaacata	gaagtttctg	gagactgaga	tcacatgaag	tgcttctggc	4920
tgtggcatgg	aagctcactg	gaggtggagc	tgggatgtgg	ctcagtgatc	cagtgttgc	4980
cacacgtgca	cgagggaaag	agccatcaaa	agagagaaaag	tcgggagacc	tgaggggtcc	5040
cctggagagc	tgggtaacca	ccccgggccc	ttctccttta	ggttctttta	gcaaatttgt	5100
gaatgtgatg	tcagccagga	cagccgtggg	tcatgaccgt	gaggggcagc	ttatcctctt	5160
ccatgctgat	ggacagacgg	aacagcgtgg	tgagtcccag	gaaccttggg	gctgtttgca	5220
cttcagccac	cctacctttc	cagtcgggtc	tggggatttg	gtgggacaag	acagctttcc	5280
ggccattttg	gaagtttcat	ctggaggcaa	tagcattttac	ctactagtga	aagaagccag	5340

ttaagccaga	gaccacaggg	gctcaagctg	cataccccct	ctgcacagcc	ttaacctatg	5400
ggagatggca	gagttcctgc	gtcaacaaga	tgtcgtcaat	gccatcaacc	tggatggagg	5460
cggttctgct	acttttgtgc	tcaatgggac	cctggccagt	tacccttcag	atcactggta	5520
agaacccttg	agccaccttt	gtggctctct	cagactgtct	cactcagtca	atactgagac	5580
cctgttgtgt	gccaggccct	gggtatccaa	aagtgagcag	aagagccgag	atctcttccc	5640
tcagggtgct	gcacagccca	tccctggaaa	cctgagacag	gtcaggaaag	gcctccctga	5700
ggacagtgaa	gtaagacctg	aggagatggc	tggccggggg	tgagagagcc	tttaccggaa	5760
gacaaaactgt	acgcaatggg	gaaatccgct	aagtggccca	gggagaggct	ggagctatag	5820
ctcaggagga	aaagtacttg	cctcgcaagc	gaaggacctg	agtttaaact	ccaaaaccca	5880
tataaaaagc	cagatacgag	caagtggcac	atgcttgtag	tcccagcctt	gttgaggaag	5940
agtcaggtga	atcctgacct	tctggccagc	cagcctagcc	tactttttgg	caaggtccag	6000
gccagcgaga	aagataaata	aaataaagtt	ttaaatgaca	tgtatctaag	gttgtcctga	6060
ctccatatgc	gcacgcacgc	atgcacgcac	gcacaactgg	cagaatggaa	agggaggcaa	6120
actggacagc	ctttataggc	tgcggcaggg	accagcacca	aggcctagac	ctcgtctcac	6180
agtgaatccc	ccacagccag	gacaacatgt	ggcgctgtcc	ccgccaaagt	tccactgtgg	6240
tgtgtgtgca	tgaaccgcgc	tgccagccac	ccgactgcag	tggccatggg	acctgtgtgg	6300
atggccactg	tgaatgcacc	agccacttct	ggcggggcga	ggcctgcagc	gagctggact	6360
gtggcccctc	caactgcagc	cagcatgggc	tgtgcacaga	gagtgagtgg	ggagcccaca	6420
ggaggggtgg	gctctggcgg	gacccagct	cgcccatgct	agactcccgc	ctgtgtcctt	6480
accagcctc	tgtggctctt	ctttggtagc	tggctgccac	tgtgatgctg	ggtggacagg	6540
atccaactgc	agtgaagggt	agagctgcct	gcaaacactc	ctggagaggg	tggcctggct	6600
gcacgcagct	ggtatgacgc	cttcgtccct	ccttctggct	tggaaacttac	cttcagagcc	6660
ttttctcatt	tcgcatgtgg	ataccgatg	ttctacctac	tgaagagacc	cacaagtagg	6720
aagccagatt	ttcagtattg	tactcaact	ctaaggacca	atagcaaaaa	aacaaagtgg	6780
ccacgcccct	gagggagatc	caccaaagtc	cttaactcct	ggaaagcagc	tcctggtgat	6840
cctagggcatg	ggtaggggtg	tttcagcatc	agctcagtgg	agttcccatt	cataatttct	6900
tcatcctttt	aaggtcataa	gttctagagc	ccaccttaaa	tctaggcagt	attcttggtg	6960
tttatctgag	acaaagtctt	atacagccca	cgcagttctc	taacttagta	tgtaaccgag	7020
aatggcctca	agcaacctgc	ttctctcttt	caagcgctgg	gattataggg	ataqcaccaa	7080



cttatagggg	gctagaagtc	aaaccagg	ccctatgtat	atgcagcaag	cactctagaa	7140
actggaacac	agccctgttt	gcagcccgg	taccttggag	ggttgggtcc	cagggatctg	7200
agggcatctc	cttcagcatg	gccatgtgca	caccaggag	ccaggctgtc	tgtgacagga	7260
gaccatgcca	ccaaggtga	gacctccctg	ccaccatctc	ctctccacag	agtgtcctct	7320
gggctgggat	gggccagggt	gccagaggcc	ctgccagtgt	gagcaccagt	gtttctgtga	7380
cccgcagact	ggcaactgca	gcctctccca	aggtatgcgg	ccttaaagg	tcttgagctg	7440
ggagcccttg	gggcagggtc	ggggtagggt	gactctcccc	agcccttctt	tctgggtgtc	7500
tgcagtgagg	cagtgtctcc	agccaactga	ggctacgccg	agggcaggag	agctggcctc	7560
tttcaccagg	taagtgtttt	agcaggcact	gagcccctat	gtctcatccg	tgaggcacta	7620
gccaggccag	gaggtcacag	gttaccctct	actttgcaag	ctcagggaca	gtcacaggta	7680
aaactggcat	ccaggaaaaga	ccctgagcta	cccagtggaa	ctcaaaggta	gcaggctatg	7740
gggtgtcatg	ctctggctgc	agagactcca	cttagatgct	ggagcagggc	catagagaca	7800
ggaaggactc	accttatttc	tgaactcttc	cgtgtgttca	ggctttgtgt	tgttggtgtc	7860
tcctttctgc	tgtttcctgg	gtttccagct	ccatccccac	agggctcatg	gaaagaattg	7920
tgaagcaggg	gggtgtggctc	aattggcaga	ttgattgcct	ggcatgcaga	aagccctagg	7980
ttcaatcccc	agcatttcat	atcataacc	aggcatgggt	gcacatgtg	cctgtaagtc	8040
cagcacttgg	gaggtagaag	cagaaaagcc	acgagtttaa	gaatgttagg	gagtcttagg	8100
ccaacctggg	atacctaaga	caagagatag	atgtagggag	atagattgac	agacagacag	8160
acagacagac	agacagacag	atcttgagct	ggaccttctg	gcacaagcct	gtcatcctag	8220
ctattccagg	aagctgaagc	aggaagatag	caaattcaag	gccagcttaa	gccacagatt	8280
gagttcaaga	tcaacctgag	caactttatg	aaatcctatt	ataacataaa	aagtaggggt	8340
gggagggttag	gctgtagctc	agtggtagag	tgattgccta	gcacgcacaa	gaccagggtt	8400
caattcccag	tactgcaaaa	aatatattag	gaacccccta	aaagcagtaa	cattcacatt	8460
agatgtgtgt	gtgtgtgtgt	gtgtgtgtgt	gtgtgtgtgt	gtgtgtgtgt	gtgtgttttg	8520
ttgggtattt	atttcattta	catttccaat	gctatcccaa	aagtccccca	catcctcccc	8580
caccaccac	cttggttttt	tttttttttt	tttttttttt	tttgacctga	aactcacagg	8640
ttaggttaga	caagctgact	ggtagactcc	aacttccaac	gtaccatcat	gcctggcttt	8700
tgttttgggt	tctctgtgta	accctggatg	tcctggagct	ctctctgtag	accagcctgg	8760

